

PATENT COOPERATION TREATY


PCT

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 24368:HALE		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/IB2005/000073		International filing date (day/month/year) 14.01.2005	Priority date (day/month/year) 19.01.2004	
International Patent Classification (IPC) or national classification and IPC G10H7/10				
Applicant YIP, Ho Yan Stephen et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 19.04.2005		Date of completion of this report 12.12.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Lecointe, M Telephone No. +49 89 2399-		



**INTERNATIONAL PRELIMINARY REPORT
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International application No.
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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-20 as originally filed

Claims, Numbers

1-9 as originally filed

Drawings, Sheets

1/14-14/14 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2,6
	No: Claims	1,3,4,5,7,8,9
Inventive step (IS)	Yes: Claims	
	No: Claims	2,6
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

1. Reference is made to the following document:
D1: Group Additive Synthesis, Piotr Kleczkowski, Computer Music Journal Vol 13
No 1 Spring 1989

2. The present set of claims is not clear (Art. 6 PCT). Indeed, the following objections arise:

- 2.1 In the feature, point 3 of claim 1:

*“Selecting harmonics of said sampled sound according to prescribed characteristics of the envelop of said harmonics **for synthesizing harmonics of the synthesized sound**”*

The use the definite pronoun “**the synthesized sound**” implies that the concept of “synthesized sound” has been defined and derived previously in claim 1. This is however not the case, and the cited feature is therefore unclear. This also applies to point 5 of claims 1 and claims 3,4,5,8 and 9.

Besides, there is an ambiguity arising in the whole set of claims concerning the use of the word “synthesising”. Indeed, this word has two meanings: the first is the extraction of parameters relating to a sound (synthesis of sound [parameters]), and the second is the reconstitution of a sound from the previously extracted parameters ([re]synthesising a sound). These two meanings result in misleading formulations and understanding of the present set of claims:

it is unclear whether the expression “synthesized sound” (see claim 1,3 4,5,8,9) refers to a sound to be generated (i.e. output sound) (1), or refer to the sampled sound from which parameters are extracted (2). The latter explanation (2) will be considered in the review for novelty and/or inventive step of claims 1, 3, 5, while the former interpretation (1) will be used in claims 4, 8, 9.

- 2.2 Claim 2 is in contradiction with claim 1, because it emphasises “*said prescribed characteristics for selecting a **harmonic**...*”, whereas claim 1 recites: “*selecting*

harmonics...", meaning that only one harmonic is selected in the case of claim 2 where multiple harmonic are selected in claim 1. Consequently, claim 2 will be interpreted as:

"wherein said prescribed characteristics for selecting harmonics include selecting harmonics with a more salient variation in amplitude over time."

3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 is not new in the sense of Article 33(2) PCT. The document D1 discloses (the references in parentheses applying to this document):

"A method of synthesizing the sound of a musical instrument, including the steps of: Obtaining samples of the sound of said instrument (see D1 page 2 column 1 paragraph 2, see the word "isolated tone" and see page 6 section "The Stimuli") analysing the harmonics of said samples of said sound (see the word "partials" in D1 page 2 section "General Conception" and the last paragraph page 2 column 2), Selecting harmonics of said sampled sound according to prescribed characteristics of the envelop of said harmonics for synthesizing harmonics of the synthesized sound (see D1, page 2, end of column 2 to page 3, beginning of column 1),

grouping harmonics of said sampled sound of similar envelop characteristics and obtaining temporal characteristics of the group of harmonics from constituting harmonics of the same group (see D1, page 3, whole column 1 and beginning of column 2),

synthesizing a plurality of synthesized harmonics of the synthesized sound, wherein are least some of the synthesized harmonics are synthesised from one of the envelopes of the harmonics of a group (see D1, section "Verification of the Technique") and conditioned by temporal characteristics of the constituting harmonics of that group (see the equation (3) in D1 expressing the signal of the complete tone synthesised). "

4. Dependent claims 2-9 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty or inventive step.

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- Claim 2 merely recites one straightforward alternative to the method recited in D1, page 3 column 2 lines 9-19. Claim 2 is therefore not inventive over D1 (Art. 33(3) PCT).
- Claim 3 merely recites the effect of the equation (3) in D1 and is thus not new over D1 (Art. 33(2) PCT).
- Claim 4 reflects the use of the A_{ki} scaling parameter in equation (3) of D1 and is thus not new over D1 (Art. 33(2) PCT).
- Claim 5, as understood from its unclear formulation (see clarity objection section 2.1), is not new over D1, where the term defined by equation (2) exhibits the claimed "*plurality of said characteristics harmonics* (D1, each of the terms $A_i \sin[nTF\Omega(n)]$ of the sum in eq (2)) *having a substantially similar envelope* (D1, term $E(n)$ in eq (2))". Claim 5 is thus not new over D1 (Art. 33(2) PCT).
- Claim 6 merely relates to a straightforward implementation choice the skilled person would make, e.g. by limiting the partials groups in order limit the processing power needed for running the method disclosed in D1 and is not inventive (Art. 33(3) PCT).
- Claim 7 merely claims the computation of the term (1)

$$\sum_{i=1}^M A_i \sin[nTF_i \Omega(n)]$$

in equation (3) in D1 and is thus not new over D1 (Art. 33(2) PCT).

- The feature added in claim 8 is present in any type of group additive synthesis and thus present in D1 (See figures 1 and 2), and the term $E_k(n)$ in equation (3) and is thus not new over D1 (Art. 33(2) PCT).
- Claim 9 merely represents the quality and type of sound sample on which the claimed method is applied and is not new over D1 (see pages 6-8, section "The

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Testing Procedure" and tables 1-4, see in particular the word "Cello"). Claim 9 is thus not new over D1 (Art. 33(2) PCT).